

Satariano, E., P. Reynolds, D. Smith and L.R. Goldman (1990). Four County Study of Childhood Cancer Incidence: Interim Report 2. Emeryville, Environmental Epidemiology and Toxicology Branch, California Department of Health Services.

EXECUTIVE SUMMARY:

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This report is a follow up to an analysis of the overall incidence of childhood cancer among residents of a four county area (Fresno, Kern, Kings and Tulare) in California from 1980 through 1988. The results of Interim Report #1 suggested the overall incidence of childhood cancer in this area during this time period to be comparable to what might be expected compared to California and national data. Interim Report #2 addressed the question of whether there were elevations of childhood cancer incidence rates in small towns throughout the southern San Joaquin Valley, the region containing McFarland.

For the purpose of this analysis, “communities” (or “areas”) were defined based on census tract configurations in 1980. The communities were reviewed by county planning departments in each of the four counties for their representativeness as separate community units. One hundred and one such areas were identified. The following analyses were conducted for each geographic designation:

1. A comparison of each “community’s” childhood cancer rate to the Four County average.
2. An evaluation of whether the distribution of childhood cancer cases (or rates) across these communities was different than might be expected by chance.
3. An evaluation of whether there were any characteristics of the cases occurring in communities with “high” rates that would distinguish them from the remaining communities.

The study findings were as follows:

1. The distribution of childhood cancers across communities of the entire Four County area during 1980-88 is not substantially different than that which would be expected (based on a Poisson distribution).
2. There were a small number of communities with rates significantly different then the overall (Four County average) rate. This includes some with significantly more and some with significantly fewer cases than expected.
 - a. A few extremes would be expected by chance based on the large number of communities examined. Some methods of analysis suggest that there may be more communities with excess cases than expected.

- b. It is not possible to distinguish between communities with rates that are high as a function of change and those with rates which may be high because some “causal” factor is operating there.
 - c. The communities with higher than expected rates include communities identified as “cluster” communities in other investigations, and some not so identified.
 - d. There are more communities than would be expected with fewer than three observed cases. It is harder to assess the number of “significantly low” communities because of constraints of statistical methods in dealing with very small numbers. There are, however, some communities with observed rates which are significantly lower than expected.
3. Cases occurring in communities with “high” rates are somewhat more likely to have been diagnosed during the early years of this study than are cases from the remaining communities. Given the data available at this point there are no features of the communities with “high” rates, or cases occurring in those communities, which clearly distinguish them from communities with low or normal rates.

The primary objective of this analysis was to establish whether or not there has been a discernable patterns of childhood cancer exceeded in communities throughout the southern Joaquin Valley similar to that observed in McFarland. The conclusion of this study is that there has not. This does not, however, discount the fact that there have been some specific communities with childhood cancer rates that are significantly higher than the average. For these communities, there is no obvious common factor which might explain those excesses. It is hoped that these data can be used to guide future efforts to evaluate modifiable factors which may be contributing to observed excesses.